ANALYSIS OF TMDL IMPLEMENTATION PLANS AND WATERSHED BASIN APPROACH REPORTS' INCLUSION OF EPA'S WATERSHED PLANS NINE KEY ELEMENTS		NAME AND DATE OF TMDL IMPLEMENTATION PLAN OR WATERSHED APPROACH BASIN REPORT (INCLUDE WATERSHED NAME)
Watershed Plans Nine Key Element	**Included Y/N**	**Where To Be Found/Comments**
4. Estimation of the amounts of technical and financial assistance needed associated costs, and/or the sources and authorities that will be relied upon to implement this plan.		
5. An information and education component is used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the NPS management measures that will be implemented.		
6. Schedule for implementing the NPS management measures identified in this plan that is reasonably expeditious.		
7. A description of interim measurable milestones for determining whether NPS management measures or other control actions are being implemented.		
8. A set of criteria that can be used to determine whether loading reductions are being achieved overtime and substantial progress is being made toward attaining water quality standards.		
9. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established.		

4. Management of NPS by Land Use

Land management activities on agricultural, forested, and urban lands can affect water quality. The types and extent of water quality impairments, as well as available resources and impediments vary geographically. It is therefore critical to consider GWMA/basin specific conditions and develop local priorities and solutions for the prevention, control, and reduction of pollution sources to achieve water quality improvements. Oregon programs have been developed and adapted to address NPSs. These programs include the management or regulation of forestry, agriculture, grazing, transportation, recreation, hydromodification, marinas, urban development, land use planning, fish and wildlife habitat, riparian and wetlands protection/restoration, public education, water resources, and other activities that affect the quality of the state's waters.

In Oregon, the legislature has adopted statutes directing the roles and responsibilities of the state agencies for managing water quality affected by agriculture activities, forest activities, and urban landscapes. Oregon's NPS Management Program is intended to control or prevent nonpoint source pollution from causing impairments and allow waterbodies to attain water quality standards and thereby protect the beneficial uses of all state waters. Oregon will promote and support programs and activities that are guided by best available science and implemented

through an adaptive management approach. In addition, Oregon will realize these goals by striving for broad community acceptance and involvement.

4.1. Agricultural Lands

One of the goals of the NPS Management Program is to assure agricultural land management does not cause water quality impairments and meet TMDL load allocations where applicable through implementation of the Agricultural Water Quality Management Act, the federal CWA, state water quality standards, and TMDL load allocations. Some of this working relationship has been memorialized in the MOA between DEQ and ODA and some of this work requires coordination with other state, federal, and local partners.

DEQ's NPS Management Program works with ODA's Natural Resource Program Area to prevent pollution and improve water quality on agricultural lands as required under the Agricultural Water Quality Management Act. DEQ and ODA's program staff and management work collaboratively on various water quality related projects to address agricultural nonpoint sources. DEQ's NPS Management Program also coordinates with DEQ programs as well as agency partners such as USDA Natural Resources Conservation Service, Soil and Water Conservation Districts, USGS, Oregon State University, and watershed councils.

4.1.1. Agricultural Water Quality Management Program

The Agricultural Water Quality Management Act (ORS 568.900 to 568.933) authorizes ODA to develop Agricultural Water Quality Management (AGWQMP) Area Plans (area plans) and rules throughout the state. If the EQC has determined that a TMDL is necessary for a water body, DEQ establishes a groundwater management area, or an agricultural water quality management plan is otherwise required by state or federal law, ORS 568.909.

The statute also authorizes the development of Agricultural Water Quality Management Area Rules (area rules) to serve as a regulatory backstop to the voluntary efforts described in the area plans. ORS 561.191 states that ODA shall develop and implement any program or rules that directly regulate farming practices to protect water quality.

The Agricultural Water Quality Management Program is the main regulatory tool to prevent and control nonpoint source pollution from agricultural lands. Water quality standards and TMDL load allocations for agricultural lands should be met through implementation of area plans and enforcement of area rules. The program also is involved with the development of Ground Water Management Act action plans and leads implementation for agricultural nonpoint sources to improve groundwater quality.

ODA began developing AGWQMP area plans in 1993 with passage of the Agricultural Water Quality Management Act in watersheds where water quality issues were identified as required by state and federal law. The reasons for initiating this planning process were a listing under section 303(d) of the federal Clean Water Act and declaration of Ground Water Management Areas.

ODA has adopted area plans and rules for all 38 regions of Oregon. Each of these area plans were developed with a local advisory committee (LAC) consisting of stakeholders residing in the watershed. The LACs were responsible for working with ODA in the development of a draft area plan to address water quality issues from agricultural activities in its area. Each plan is reviewed and revised about every two years, and the LACs play an important role. All of the area plans have undergone at least several biennial reviews.

ODA is a Designated Management Agency (DMA) for TMDL implementation. ODA has been a partner for TMDL development. DEQ's basin coordinators and ODA staff have ongoing working relationships with the review and implementation of area plans, as well as local water quality issues related to drinking water. Soil and Water Conservation Districts (SWCDs) have contractual relationships with ODA to act as a local management agencies (LMAs) to meet water quality goals on agricultural lands.

Area plans must describe a program to achieve the water quality goals and standards necessary to protect designated beneficial uses related to water quality, as required by state law (OAR 603-090-0030(1) and the federal CWA.

At a minimum, an area plan must:

- Describe the geographical area and physical setting of the Management Area
- List water quality issues of concern
- List impaired beneficial uses
- State that the goal of the area plan is to prevent and control water pollution from agricultural activities and soil erosion in order to achieve applicable water quality standards
- Include water quality objectives
- Describe pollution prevention and control measures deemed necessary by the Oregon Department of Agriculture (ODA) to achieve the goal
- Include an implementation schedule for measures needed to meet applicable dates established by law
- Include guidelines for public participation
- Describe a strategy for ensuring that the necessary measures are implemented

The area plans as well as the reports can be found at the following link:
http://egov.oregon.gov/ODA/NRD/water_agplans.shtml.

4.1.1.1 Memorandum of Agreement

DEQ and ODA negotiated and signed a Memorandum of Agreement in May 2012. The MOA is intended to guide the agencies to fulfill respective legal responsibilities and obligations in an efficient and effective manner.

The following objectives are applicable to DEQ staff and management:

- Leverage and strategically invest funds and resources by engaging in local and statewide watershed protection and restoration efforts.
- Support ODA to develop and implement AGWQMP area plans that would, when implemented, achieve TMDL load allocations and water quality standards including groundwater.
- Support ODA to develop and ensure compliance of AGWQMP area rules that would, when implemented, help achieve TMDL load allocations and water quality standards.
- Evaluate program effectiveness by designing, coordinating, and conducting water quality monitoring projects and compare with implementation activities.
- Capitalize on Water Quality Pesticide Management Team (WQPMT) partnerships to develop and implement a Pesticide Management Plan that would, when implemented, achieve water quality standards and other benchmarks including groundwater protection.

4.1.1.2. Other programs and partners

- DEQ works with other partners and ODA programs to meet water quality goals for agricultural lands. The following programs and partnerships are active in Oregon:
  - Conservation Effectiveness Partnership (CEP) NRCS, OWEB, ODA, and DEQ). USDA-NRCS, OWEB, ODA, and DEQ recognized a benefit to the public and agencies if the programs could more readily share information, and began exploring opportunities for collaboration on the shared grant program goals of improving water quality, watershed functions and processes. The agencies signed a memorandum of understanding in 2010 to formalize this collaboration and allow the sharing of certain types of data.

  The goals of the partnership are to:
  - Build an understanding of the extent of the investment in watershed improvement actions through the agencies' collective grant programs;
  - Develop a better understanding of how local organizations are utilizing the agencies' respective grant programs, in concert;
  - Evaluate the impacts of grant investments on water quality and watershed health;
  - Describe gaps in the treatment of watersheds; and
  - Design tools and methods to report accomplishments to the public.

- The partner agencies selected two "pilot watersheds", the Wilson River in Tillamook Bay, and Wychus Creek along the Upper Deschutes River. The pilots were selected due to the length of time and investment of grant program dollars, the magnitude of projects undertaken, the availability of current data sets for these watersheds, and the potential to detect trends of change.(3.2.4 MOA between NRCS, OWEB, ODA, and DEQ).
- Water Quality Pesticide Management Program (ODA, DEQ, ODF, OHA, OWEB, OSU).
- Local and Statewide groups for strategic implementation.
  There are a number of committee meetings held at the state and regional level in order to develop and implement strategies for implementation:
  - Oregon Technical Advisory Committee (OTAC): The Natural Resources Conservation Service (NRCS) State Conservationist and Farm Service Agency (FSA) State Director co-chair the OTAC under section 1446 of the 1990 Farm Bill. The Oregon USDA established the committee to provide advice for technical considerations and guidance for implementing programs in the Farm Bill such as Environmental Quality Incentive Program and Conservation Innovation Grants.
  - Local and Basin Work Groups: NRCS holds meetings in each basin and county to allocate available funding in strategic manner.
  - OWEB grants review group: OWEB convenes regional and statewide teams used to prioritize and recommend projects for OWEB funding.

4.1.3. Nonpoint Source Program Priorities

Due to limited resources and fluctuating state revenues, it is necessary for DEQ's nonpoint source program to be selective when allocating funds and resources. DEQ has been working with partners in the agriculture sector to coordinate and focus efforts.

4.1.3.1. TMDL Implementation, Biennial Reviews and Basin Plans

The priority work for DEQ for the next five years is to improve water quality on agricultural lands. DEQ considers it important to build Oregon's capacity to be able to measure and report on nonpoint source activities and water quality trends on agricultural lands at various scales.

This is accomplished by the following actions:

- The Oregon Nonpoint Source Pollution Program Annual Report summarizes implementation of activities to reduce nonpoint sources of pollution and water quality responses.
- TMDL implementation for TMDLs developed to address nonpoint sources could include DMA reporting that would be used by DEQ for reporting on NPS activities and water quality responses.
- DEQ will participate in the biennial review process to assist ODA to identify and document implementation actions. Implementation on agricultural lands should be strategic and future actions should be documented in order to demonstrate accountability and to leverage various funding sources.
- Decisions should be made while considering unique water quality issues. Basin priorities will be identified through the basin plan development process. Where basin plans have been developed, DEQ will use the action plans and basin priorities to determine how resources for agriculture will be allocated. DEQ is committed to developing and revising basin plans for each basin every five years.
- Evaluation and reporting capacity is completed by DEQ, which prioritizes program activities in order to build capacity to report on the effectiveness of agricultural programs and water quality trends.

4.1.3.2 Focus Areas and Strategic Implementation Areas

ODA went through a strategic planning process in 2012. This was followed in May 2012 with an Oregon Board of Agriculture action item recommending that ODA develop additional alternatives to a complaint-based water quality program. The Board further recommended that the AGWQMP Program devote more resources to building relationships, plan implementation, and compliance. To reinforce this goal, in March 2013 the Board passed Resolution 331. The resolution supports ODA to establish a strategic program implementation process that identifies

key geographic areas (strategic implementation areas) and targets resources to achieve compliance with local water quality regulations. The Board of Agriculture resolution noted that the effort should be founded on the basic conservation principles of erosion control, nutrient management, stream bank stabilization, and moderation of solar heating of streams, promoted by aligning resources with local, state and federal natural resource partners.

Within strategic implementation areas, ODA will do a pre-assessment to identify locations likely not meeting water quality regulations. ODA will then work with local, state, and federal partners to outreach to agricultural landowners in the area, with a focus on those properties that are likely not in compliance. Following the outreach period, ODA will identify locations likely not meeting water quality regulations and schedule site visits to seek compliance. ODA will then do a post-assessment to measure change and communicate progress.

ODA has asked SWCDs to select "Focus Areas" for implementation in each management area. Focus Areas concentrate limited outreach, technical assistance, and financial assistance resources in smaller geographic areas where change may be measured faster. These efforts are focused on impaired areas since they are seen as the best, most effective way to prioritize staff and funding to improve water quality.

4.1.3.3 National Water Quality Initiative and State Resource Assessment Process

The Natural Resources Conservation Service identifies and works in priority watersheds throughout the Nation to improve water quality through the National Water Quality Initiative. NRCS provides financial assistance to help producers and ranchers implement conservation practices and systems to reduce water quality pollution from agricultural lands. In Oregon, NRCS works with local as well as federal partners including DEQ, ODA, USFWS and others to identify NWQI watersheds based on needs as well as opportunities. In addition, EPA has directed the states to conduct effectiveness monitoring using 319 funds in NWQI watersheds.

As of January 2014, EPA has awarded technical assistance grants for Oregon to develop monitoring plans for Fifteen Mile and Willow NWQI effectiveness monitoring projects. DEQ and its partners will be developing and implementing the effectiveness monitoring projects in those watersheds during 2014-2019.

4.1.4. The NPS Program Measures, Timelines, and Milestones

The following strategies are applicable to DEQ staff and management between 2014 and 2019. Schedule may be revised based on annual prioritization process and implemented accordingly. DEQ currently works on many of the tasks identified here:

Statewide/Programmatic Projects:

- DEQ's projects often involve partners. DEQ will continue to seek opportunities to collaborate with others. (Ongoing)
- Protection of high quality waters are prioritized locally through Basin Planning process. In addition, protection is considered during triennial review. (Ongoing)
- Basin priorities for agriculture are identified through basin plan development process to ensure decisions are made while considering unique water quality issues. (Ongoing)
- DEQ works with local, state, and federal partners that provide technical assistance to producers to promote conservation practices and restoration. DEQ will continue those partnerships. (Ongoing)
- DEQ considers AGWQMP to be a key program for implementation. Review and update AWQM Program biennial review guidance document. (Annually)
- DEQ considers various programs that provide funding for implementing conservation practices and protection to be key programs for implementation. DEQ will continue to participate in existing statewide efforts to direct funds, and continue to seek other opportunities. (Ongoing)
- DEQ considers TMDL to be a key program for implementation. Revise and finalize TMDL Guidance document. (4/2014 to 4/2015, revise as necessary)
- Develop and incorporate source water protection guidance into AGWQMA Program biennial review guidance document. (Annually)

- Develop and provide training related to agricultural land use, policy, and regulations to staff and partners. (As resources allow)
- Participate in Oregon Technical Advisory Committee meetings and subcommittees to direct funds to high priority projects. (Ongoing)
- Work with Clean Water State Revolving Fund program and Source Water programs to identify opportunities to streamline and leverage each other's resources. (Ongoing)
- Develop and implement a programmatic strategy to address agricultural activities on federal lands, such as grazing. (1/2016 to 12/2016)
- Support ODA to develop vegetation assessment methodology for SIA and FA. (evaluate and revise in 2015)
- Work with ODA to prioritize and help develop assessment methodologies for other area rule compliance. (6/2013 to 1/2019)
    - Erosion and sedimentation
    - Manure and nutrients
    - Pesticides
    - Waste management
- Develop capacity and provide GIS and water quality information to ODA during biennial reviews to facilitate prioritization and development of measurable milestones and timelines for implementation. (12/2013 to 1212/2014, then ongoing) - evaluate and revise as needed
- Participate in CEP. Develop success stories by analyzing existing data or collecting additional data. (Ongoing)
- Collaborate with NRCS and OWEB to align reporting categories so that implementation information reported to both sources could be aggregated and reported by subbasin and basin scale. (66/15 to 3/16)

Basin/ Local Level Projects:

- DEQ's projects often involve partners. DEQ will continue to seek opportunities to collaborate with others. (Ongoing)
- DEQ will consider protection of high quality waters are prioritized locally through Basin Planning process. (Ongoing)
- Participate in biennial review process. Provide written comments on the contents including the plan objectives, focus area selection, measurable milestones, and timelines for implementation by using internal guidance document. (Ongoing)
- As mentioned above, DEQ works with local, state, and federal partners that provide technical assistance to producers to promote conservation practices and restoration. DEQ will continue those partnerships. (Ongoing)
- DEQ considers AGWQMA to be a key program for implementation. Participate in Agricultural Water Quality Management Area (AGWQMA) Plan biennial review and provide comments consistent with the guidance document. (Biennially)
- DEQ considers various programs that provide funding for implementing conservation practices and protection to be key programs for implementation. Participate in existing statewide efforts to direct funds, and continue to seek other opportunities. See other applicable strategies. (Ongoing)
- DEQ considers TMDL to be a key program for implementation. Engage and work with agricultural partners. Once TMDL Guidance document is drafted, use it to ensure consistency. (Ongoing)
- As resources allow, work with other WQ programs as well as local partners to leverage their resources. (Ongoing)
- Participate in Local Working Groups and OWEB Grant meetings. (Ongoing)
- Work with federal land management agencies to address agricultural activities on federal lands, such as grazing where they have been identified as priorities in basin plans. (Ongoing)
- Conduct additional vegetation assessment for SIAs and FAs where applicable. (1/2014 to 1/2019)
- Evaluate vegetation assessment data with ODA and estimate percent of SIA and FA meeting TMDL/WQS goals. (6/2015 to 1/2019)
- Implement monitoring plan and measure water quality trend on agricultural lands over time as indicated in monitoring plan (4/2014 to 1/2019)

4.1.5 ODA's Tracking

ODA keeps records of compliance related information, as well as summarizes and reports annually to interested entities including Oregon DEQ.. ODA and the SWCDs also produce reports associated with AWQMA Plan biennial reviews. The reports include updates on compliance and monitoring efforts as well as a summary of progress toward plan objectives and targets on outreach and on the ground projects.

DEQ's regional staff provides technical assistance and coordinates with ODA's water quality specialists to review the area plans and provide information for the reports as resources allow. ODA followed up on complaints by conducting site visits or driving by the sites. More compliance investigations were initiated due to issues related to manure management than other water quality issues. The area plans as well as the reports can be found at the following link: http://egov.oregon.gov/ODA/NRD/water_agplans.shtml.

4.1.5.1. Water Quality Program Compliance Summary

ODA provides the following information to DEQ annually. The following figures are included in NPS annual report to EPA.

- Total number of site visits by ODA's regions
- Compliance Investigations by Pollutant
- Source of Compliance Investigation
- ODA compliance action taken

4.1.5.2. Outreach and Education Summary

ODA provides funding to 45 SWCDs for implementation of water quality programs. One of the core components of the water quality program at ODA is its relationships with the SWCDs. ODA and the SWCDs negotiate scope of work agreements to clarify conservation projects to be completed. In Fiscal year 2011, the SWCDs used various venues to reach agricultural producers and rural land residents to promote conservation practices. Additional information on conservation practices is captured under funding partner section. Table 4 provides example of the different types of SWCDs outreach and education activities. Table 5 identifies other SWCD activities in the number of site visits and water quality monitoring sites.

Table 4: Example SWCDs Outreach and Education Summary

SWCDS OUTREACH AND EDUCATION	# EVENTS	ATTENDANCE OR DISTRIBUTION
Presentations	213	7002
Demonstrations	24	598
Tours	73	1507
Displays	127	38457
Student Events	201	16171
Fact Sheets	62	20265
Newsletter articles	579	54641

Table 5: Other SWCD Activities

OTHER SWCD ACTIVITIES	
Number of Site Visits	2689
Water Quality Monitoring Sites	470

4.2 State and Private Forest Lands

Oregon's NPS program for forestry uses cooperation between Oregon's DEQ and ODF, respectively to reduce and prevent NPS pollution from non-federal forestlands. Under the Oregon Forest Practices Act (FPA), ODF has exclusive jurisdiction over water quality regulation on non-federal forestlands unless additional protections are required by the federal Clean Water Act.

Under ORS 468B.110(2), ORS 527.765, and ORS 527.770, the Board of Forestry establishes best management practices or other control measures by rule that, to the maximum extent practicable, will ensure attainment and maintenance of water quality standards. If the Environmental Quality Commission does not believe that the FPA rules will accomplish this result, the EQC is authorized to petition the Board for rules that are more protective. If the EQC petitions the Board for review of BMPs, the Board has two options: terminate review with the EQC concurrence, or begin rulemaking. If the Board determines that BMPs should be reviewed, rules specifying the revised BMPs must be adopted not later than two years from the filing date of the petition for review, unless the Board, with concurrence of the EQC, finds that special circumstances require additional time.

Upon the EQC's request, the Board is required to take interim action "to prevent significant damage to beneficial uses" while the BMPs are being reviewed. The "BMP shield" under ORS 527.770 is lost if the Board fails to complete BMP revisions, or makes a finding that revisions are not required, within the statutory deadline. In addition, under 468B.110(2), the EQC cannot adopt rules regulating nonpoint source discharges from forest operations and the DEQ cannot issue TMDL implementation plans or similar orders governing forest operations unless "required to do so by the CWA." This authority would also be triggered by the failure of the Board to adopt adequate BMPs to implement TMDL allocations for forestry or to avoid impairment of water quality such that standards are not met.

The FPA Rules and Best Management Practices (BMPs) protect natural resources including water quality. The FPA rules are periodically evaluated to insure that forest practices do not contribute to violations of water quality standards and those changes to rules be evaluated if the state Board of Forestry finds evidence of resource degradation and the public policy process under ORS 527.714 is completed. ODF has existing processes in place that help guide the work of staff by establishing work priorities.

A few examples of these processes follow:

The Forestry Program for Oregon, which describes the mission, values, vision, goals, objectives, and indicators of sustainable forest management. The Oregon Board of Forestry has developed a Board work plan designed to describe major topics that the Board will discuss based on information from staff. The Private Forests Division has also developed an Annual Operations Plan (AOP) that is the framework for staff priorities for the current year. These processes will be used by DEQ to identify common priorities and tasks, and priorities are developed with opportunities for DEQ's input.

ODF has completed a monitoring strategy to establish priorities for monitoring. Oregon DEQ works cooperatively with ODF to evaluate rules and BMPs, design, implement, and analyze studies of forest practice effectiveness, and alter rules and BMPs when necessary This sequence of actions allows ODF to work in a "plan-do-check-act" cycle that affords continuous improvement of the FPA over time. An example of this process is the changes to the road rules over time to prevent sediment movement from forest roads into waters of the state.
ODF and DEQ have the following State and Private Forest Lands Priorities:

- In cooperation with ODF Private Forest Division staff, ensure that water quality standards are being attained, TMDL load allocations are being met, and beneficial uses are being supported on private forestlands in Oregon.
- Evaluate voluntary implementation of Oregon Plan for Salmon and Watersheds in reducing water quality risks and impacts, identify information gaps, and collect additional information as needed in cooperation with ODF and landowners.
- Evaluate effectiveness of Oregon Plan for Salmon and Watersheds in reducing water quality risks and impacts.
- Review any changes to state forest management plans and work with ODF State Forest Division staff so changes to plans continue to protect water quality and beneficial uses on state-owned forestlands.

ODF and DEQ have the following State and Private Forest Lands Objectives:

- Continue evaluation of small and medium fish-bearing stream protection rules with respect to the Protecting Cold Water criterion of Oregon's temperature standard and temperature TMDL load allocations under the Human Use Allowance.
- Continue contributing to evaluation of RipStream data on riparian stand characteristics to determine if riparian stand function under the FPA and state forest management plans will provide adequate large woody debris recruitment for maintenance and creation of aquatic habitat, sediment regulation, and cold-water refugia.
- Discuss sufficiency of FPA for protection of water quality and beneficial uses with regard to small non-fish-bearing streams, landslide-prone areas, sediment-related processes, pesticide use (see PSPs), and drinking water sources by assisting ODF with their monitoring strategy and through data analysis and funding, as needed.
- Provide review on any proposed changes to state forest management plans that may impact water quality.
- Collect information on voluntary measures implemented under the Oregon Plan.

4.2.1 RipStream (Riparian Function and Stream Temperature) Study

The products of the RipStream Study relate to Objectives 1 and 2 above.

ODF's RipStream project has been developed to provide a coordinated monitoring effort with which to evaluate effectiveness of Oregon Forest Practices Act (FPA) rules and strategies in protecting stream temperature, and promoting riparian structure that provides necessary functions for the protection of fish and wildlife habitat. DEQ is participating in the RipStream project by providing 319 funds and assisting in analyses of data and study results in cooperation with ODF staff. DEQ is also providing assistance through scientific, geographic, and policy analysis.

In order to meet this objective, the following questions were addressed:

- Are the FPA riparian rules and strategies effective in meeting DEQ water quality standards regarding protection of stream temperature and attaining the water quality standard?
- Are the FPA riparian rules and strategies effective in maintaining large wood recruitment to streams, downed wood in riparian areas, and shade?
- What are the trends in riparian area regeneration?
- What are the trends in overstory and understory riparian characteristics? How do they, along with channel and valley characteristics, correlate to stream temperature and shade?

ODF has completed their initial analysis to test whether current riparian protections on small and medium fish-bearing streams are adequate to meet water quality standards for temperature. Streams in State Forests are meeting both numeric and Protecting Cold Water (PCW) criteria of the temperature standard. Streams on private forests are typically meeting the numeric criterion, although 3 of 18 experimental stream reaches showed an exceedance after harvest. (Four additional streams exceeded numeric criteria pre-harvest or in the control reach, a mix of state and private sites.) However, streams are not meeting the PCW criterion in 40% of post-harvest cases compared to a

natural background rate of 5% on state and private forests. The higher than background PCW non-compliance rate also indicates an inability to consistently meet TMDL load allocations for forestry on fish-bearing streams. It should be noted that the starting temperatures in these streams are usually far below the numeric criteria.

Streams managed by FPA riparian rules showed a post-harvest average increase of 0.7 degrees C in the daily maximum temperature. State forest rules resulted in no change in the average daily maximum. Subsequent analysis has shown that reductions in shade are the primary factor driving these temperature changes, and shade decreases are primarily connected to lower basal areas.
The Oregon Board of Forestry issued a finding of degradation of resources (water quality) and initiated rulemaking. Rule alternatives are currently being designed and analyzed. Staff from ODF have done further analysis of RipStream data and conducted a Systematic Review of the scientific literature on harvest effects on shade and/or stream temperature. The results of the Systematic Review and analysis will be used to identify alternative rules that can meet the PCW criterion. The rule changes for temperature protection on small and medium fish-bearing streams should be completed over the next year and will have continued involvement and assistance from DEQ. Future analysis will evaluate if riparian management prescriptions are sufficient for riparian large woody debris recruitment needs.

The NPS program is working with ODF and will utilize existing ODF processes such as their monitoring strategy to evaluate FPA sufficiency for small non-fish-bearing streams, landslide-prone areas, sediment processes, pesticides, and drinking water protection. This would incorporate past and ongoing agency work (e.g. Turbidity Report on Coast Range Public Water Systems, FPA compliance monitoring, Regional Solutions projects, PSPs, MidCoast TMDL work) and research (e.g. peer-reviewed studies; Trask, Alsea, Hinkle Creek watershed studies). It might also require new monitoring projects, so scoping and perhaps initiation of those studies would take place during the next 2 years.

4.2.2 Forest Practices Act Sufficiency Analysis

Analysis of Oregon FPA sufficiency relates to Objective 3 above.

Oregon's DEQ and ODF completed "Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality" in 2002. The Sufficiency Analysis described forest practice rules and their degree of certainty in terms of meeting water quality standards. It identified, among other things:

- Uncertainties in the ability of riparian rules for small and medium fish-bearing and non-fish-bearing streams to meet the temperature standard;
- Uncertainties in the ability of riparian rules for small and medium fish-bearing and non-fish-bearing streams to provide enough large woody debris over time for habitat creation and maintenance;
- Road rules being insufficient to meet turbidity and sedimentation standards due to inadequate cross-drain spacing and wet-weather hauling problems;
    - Corrected in 2003 rule changes;
- Adequacy in current fish passage rules when implemented.

While the Sufficiency Analysis did contain discussion of forest practice (specifically clear cutting) effects on shallow landslide processes, it did not reach any conclusions or evaluate whether current rules for harvest on landslide-prone areas are protective of water quality. There are landslide rules in effect for public safety considerations. There is also a lack of information on upgrades to roads built before the current rules were in effect. Some locations (e.g. steep side slopes and riparian/floodplain areas), types of construction (e.g. cut-and-fill), and stream crossings represent a higher risk for catastrophic failures.

Voluntary upgrades and storm proofing have been extensive, but there is little information about remaining risk on the landscape. In addition, the science around sediment regimes has advanced over the last decade and recent monitoring shows low-levels of herbicides applied in forestry are reaching surface waters, and there are water quality problems (turbidity) for Public Water Systems in the Coastal Zone that may be related to forest practices.

The NPS program plans an evaluation of FPA sufficiency for small non-fish-bearing streams, landslide-prone areas, sediment processes, pesticides, and drinking water protection. This would incorporate past and ongoing agency work (e.g. Turbidity Report on Coast Range Public Water Systems, FPA compliance monitoring, Regional Solutions projects, PSPs, MidCoast TMDL work) and research (e.g. peer-reviewed studies; Trask, Alsea, Hinkle Creek watershed studies). It might also require new monitoring projects, so scoping and perhaps initiation of those studies would take place during the next 2 years.

The NPS Program Measures, Timelines, and Milestones:

The NPS Program Measures, Timelines, and Milestones:

- Continue to participate in ODF/BOF rule work for evaluation of changes to stream protection rules for small and medium fish-bearing streams [Complete during 2014].
- Participate in analysis of riparian stand information to determine if large wood recruitment and other riparian functions are being maintained [Cooperate with ODF in creating a timeline during 2014; Continue assisting ongoing analysis]
- Continue working with ODF to ensure that water quality standards are being met with regard to small non-fish-bearing streams, landslide-prone areas, sediment processes, pesticide use, and drinking water sources on nonfederal forestlands. [In cooperation with ODF during 2014-15]
    - If necessary, create plan to remedy risks and impacts not covered by current rules [In cooperation with ODF by December 2016]
- Update the 1998 MOU between ODF and DEQ [In cooperation with ODF by December 2015]
- Review proposed changes to state forest management plans and comment as needed to ensure state forest plans will meet water quality standards and TMDL load allocations. [As necessary]
- Collect information on work done under the Oregon Plan and remaining water quality risks and impacts not covered by combination of forest practice rules and Oregon Plan implementation. [In cooperation with ODF by December 2015]
    - If necessary, create plan to remedy risks and impacts not covered by rules and Oregon Plan [In cooperation with ODF by December 2016]

4.3 Federal BLM and USFS Lands

4.3.1 Coordination with USFS and BLM to Meet State and Federal Water Quality Rules and Regulations

Oregon DEQ has Memoranda of Understanding (MOUs) with both the BLM (BLM) and U.S. Forest Service (USFS). The purpose of the MOUs is to document the cooperation between the parties to ensure that the agencies cooperatively meet State and Federal water quality rules and regulations related to point and NPS water pollution from USFS and BLM managed lands.

The federal CWA and associated Oregon Revised Statutes (ORS) and Administrative Rules (OARs) were created to assure that waters of the state (e.g., lakes, ponds, rivers, streams, and groundwater, etc.) in Oregon meet water quality standards. In addition, the implementing programs and regulations require that all feasible steps be taken toward achieving the highest quality water attainable. Federal agencies located within the state are held to the same standards as all other entities to manage waters under their jurisdiction to meet these standards.

The specific tasks identified in the MOU are:

- The USFS will conduct BMP implementation and effectiveness monitoring following the USDA National Best Management Practices for Water Quality on National Forest System Lands National Core BMP Technical Guide BMPs monitoring protocols that will also be required in Forest Plans and projects.

- The BLM and USFS will review and revise BMPs for all land uses and activities including harvest as necessary to improve their effectiveness.
- DEQ will review the BLM and USFS BMPs for the full range of land use activities addressed in Forest Plans, Forest Plan amendments, and Water Quality Restoration Plans (WQRPs).
- The DEQ will review and comment on Forest Plans and Forest Plan amendments, and provide comments and approval of WQRPs.
- The USFS will evaluate whether Regional programmatic and structural BMPs are needed to supplement the national BMPs and develop any deemed necessary. (All developed BMPs will be provided to DEQ for review and comment.)
- Work with the USFS and BLM to develop a water quality-monitoring program that identifies the number, type, and location of WQRP management measures (BMPs) including restoration projects being implemented and the instream water quality effects of implementing the BMPs over time in meeting TMDL Load Allocations and water quality standards. This would include evaluating shade zones and buffer widths, the effectiveness of the BLM roads BMP and other BMPs for all land uses and activities including harvest. The BLM and USFS will provide regulatory compliance data, listing and delisting data and TMDL support data that meets DEQ QA/QC requirements. The BLM and USFS will provide technical assistance in analyzing and interpreting data. Data will be submitted in a format that is compatible with the DEQ databases to the extent possible.
- Work with the USFS and BLM to ensure all TMDLs issued by DEQ have WQRPs completed and submitted to DEQ for approval.
- The BLM and USFS rely on the BMP process (as specified in the USFS NPS Plan) for protection, restoration, and maintenance of water quality through NEPA planning documents, aquatic conservation strategies, WQRPs, and most importantly project implementation. Implementation and effectiveness of BMPs are the legal and policy mechanism for control and management of NPS pollution. This important process was not effectively documented and communicated in the past, and should receive high priority for development, reporting, tracking, and approval by DEQ.
- The BLM and USFS will include as a term and condition of authorizations that the third party will obtain and abide by all required federal, state, or local permits and certifications. The BLM and USFS will not issue any third party authorization that is subject to state certification under CWA section 401 until the agency has received documentation that the state has issued the 401 certification or waived the requirement.
- Establish a process for joint review of ongoing watershed protection, restoration, and compliance activities; including a plan of short and long-term work.
- Participate in Forest Plan and Resource Management Plan revision processes to attain agreement on water quality goals to reduce the need for project level EA and EIS reviews.
- Work with the USFS and BLM to establish a process for joint review (both office and field) of ongoing watershed work/priorities.
- To develop a process of joint review of planning and upcoming activities that will assist with identifying and adjusting where feasible agency priorities, resources and funding, and facilitate implementation and monitoring of WQRP BMPs and restoration activities.

The Legal Authorities identified in the MOU are:

- Authority for controlling point and NPS pollution is provided in the Federal Water Pollution Control Act [As Amended through P.L. 107–303, November 27, 2002, (33 U.S.C. 1251 et seq. SEC. 101 (a) (7))]. The federal CWA establishes a national framework for protecting and improving water quality. The federal CWA was amended in 1987 to require States to develop plans for controlling nonpoint sources of water pollution. Oregon's NPS Control Program was established in 1978 before the passage of the Section 319 amendments in 1987.
- Section 313(a) (33 U.S.C. 1323) of the federal CWA directs the Federal Government to comply with all Federal, State, and local requirements with respect to the control and abatement of both point and NPS water pollution. Executive Order 12088 reinforced federal CWA requirements. Section 319(k) of the federal CWA (33 U.S.C. 1329) specifically addresses NPS pollution by directing Federal agencies to

accommodate the concerns of the State regarding the consistency of agency projects with the State's NPS pollution management program.

- The National Forest Management Act (NFMA) of 1976 (P.L. 94-588; an amendment to the Forest and Rangeland Renewable Resources Planning Act of 1974) is the primary statute governing the administration of the USFS which called for the management of renewable resources on national forest lands.
- The U.S. Forest Service will follow the Forest Service/Bureau of Land Management Protocol for addressing Clean Water Act 303(d) listed waters[2] in subbasins with 303(d) listed stream(s), and in watersheds where there is no TMDL scheduled.

The MOU identified priorities:

- The DEQ and the U.S. Forest Service will continue to collaborate on identification and prioritization of water quality restoration projects. Priorities include the closing and restoration of roads so that soil and other road pollutants do not enter waters of the state and restoring riparian and wetland habitat so that shading is restored in order to meet DEQ temperature standard and to reduce soil, pesticides, and other pollutants from entering into waters of the state.
- Work with USFS and BLM to get water quality data and riparian restoration information for inclusion in the Oregon NPS Annual Report
- Prevent, reduce, eliminate, or remediate point and NPS water pollution and, where necessary, improve water quality to support beneficial uses on BLM and USFS administered lands.
- Cooperate on priorities, strategies, and funding using a watershed approach to protect and restore water quality on BLM and USFS administered lands.
- Foster and enhance communication, coordination, and working relationships between the USFS, BLM, and DEQ.
- Identify and implement USFS, BLM, and DEQ authorities, policies, programs, and practices that collectively ensure attainment of Federal and State water quality standards and TMDL load allocations on BLM and USFS administered lands.
- Identify, clarify, and support DEQ, BLM and USFS roles and responsibilities specific to water quality in a manner that reduces duplication of work.
- Establish a process and time line for joint review of ongoing watershed protection, restoration, and compliance, including development of a plan for short and long-term work.
- Evaluate progress and success in meeting or surpassing water quality goals and requirements.

The Objectives identified in the MOU to be used by DEQ, the USFS, and BLM:

- Acquire and utilize information collected by USFS and BLM about BMP implementation, effectiveness, and water quality responses on BLM and USFS administered lands.
- Identify information gaps/uncertainties and means to fill those gaps.
- Define BLM, USFS, and DEQ's roles and responsibilities when contractor actions, vandalism, or other third party actions result in violations of state water quality rules and standards on ~~federal forestland~~ BLM and USFS administered lands.
- A Statewide Annual Status Report will be written with involvement from each agency. This written report will satisfy MOU and DEQ TMDL reporting requirements.

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[2] The *FS/BLM Protocol for Addressing Clean Water Act Section 303(d) Listed Waters (The Protocol), May 1999*, and/or updates are the guidance for meeting these responsibilities. The protocol was signed by the Regional Administrator of the EPA for Region 10, by the Regional Foresters for the FS in Regions 1, 4, and 6, and by the State Directors for the FS in Oregon, Washington, Idaho, and Montana.

Additional guidance for WQRPs include DEQ's current May 2007 TMDL Implementation Plan Guidance – for State and Local Government Designated Management Agencies available at: http://www.deq.state.or.us/WQ/TMDLs/docs/impl/07wq004tmdlimplplan.pdf.

- BLM and USFS will provide updates to WQRP status (e.g., "in progress", "completed", "approved", "being revised", other.) using a WQRP/TMDL tracking table. The BLM, USFS, and the DEQ will work together to develop a centralized streamlined process using existing databases and reporting mechanisms.
- The BLM and USFS will provide a summary of WQRP accomplishments including restoration and WQRP coverage with spatial context for BLM and USFS.
- The ~~forestland~~BLM and USFS agencies will provide the results of BMP implementation and effectiveness monitoring required in management plans and WQRPs.
- The agencies will provide updates on internal strategic planning that could affect MOU implementation.
- The agencies will provide updated contact lists to include the DEQ subbasin coordinators and NPS Coordinator along with BLM Oregon districts, USFS Regional Office, and USFS and BLM Oregon Water Program contacts.
- During the fifth year of implementation, the MOU will be reviewed to evaluate effectiveness and discuss MOU update and renewal. A five-year progress report will be prepared by the USFS Pacific Northwest Regional Office and the DEQ headquarters with input from the DEQ Regional and USFS National Forest offices and transmitted to the DEQ Water Quality Administrator and USFS Regional Forester.
    - The 5-Year Report will use information gathered in each Annual Status Report and recommend any changes to the future MOU. The MOU should serve as an outline for the 5-Year Report. The basic elements would include the following:
        i. The spatial coverage of Federal land ownership, WQRP extent, and WQRP status ("in progress", "completed", "approved", "being revised", and "other").
        ii. Individual WQRP development and implementation progress.
        iii. A summary of BMP implementation and effectiveness monitoring.
        iv. An evaluation of agency activities in meeting Federal and State Water Quality programs and standards.
        v. The recommendations for MOU updates.

4.3.2 Revision of BLM Resource Management Plan and EIS for Western Oregon

In March 2012, the BLM began the process of revising the Resource Management Plans (RMPs) for 2.5 million acres of forested lands across six BLM Districts in western Oregon. BLM intends to revise the six RMPs with an associated EIS for the Western Oregon Planning Area. BLM has begun the scoping process, to determine the scope of issues to be addressed by the environmental analysis, including alternatives and the significant issues related to the planning process.

The Federal Land Policy and Management Act of 1976 (FLPMA) requires the development, maintenance, and revision of land use plans. Preparation of the RMPs and EIS will conform to federal and state management laws including the Endangered Species Act, the Clean Water Act, and the National Environmental Policy Act.

In 2012, the State of Oregon signed an MOU defining the process and scope of the state's involvement in developing an RMP that involves and receives better understating of how the state and federal clean water act and state rules and regulations are included in the RMP. DEQ, ODF, ODFW, and DSL directors signed the MOU. The key federal and state natural resources agencies are members of the Cooperating Agencies Advisory Group and technical workgroups such as riparian/aquatic resources.

BLM is on a schedule to have a final RMP and EIS completed by 2015.

4.3.3 USFS and BLM BMPs for Land Management Activities

4.3.3.1. USFS BMPs for All Land Management Activities

The purpose and objectives of the USFS National BMP Program is to provide a standard set of core BMPs and a consistent means to track and document the use and effectiveness of BMP use on NFS lands across the country. The objectives of the National BMP Program are:

- To consolidate direction applicable to BMP use for NPS pollution control on all NFS lands to avoid, minimize or mitigate adverse effects to soil, water quality and riparian resources.
- To establish a uniform process of BMP implementation that will meet the intent of the federal and state water quality laws and regulations, Executive Orders, and the United States Department of Agriculture (USDA), and Forest Service directives.
- To establish a consistent process to monitor and evaluate Forest Service efforts to implement BMPs and the effectiveness of those BMPs at protecting water quality on regional and national scales.
- To establish a consistent and creditable process to document and report agency BMP implementation and effectiveness.

This technical guide contains the national core set of BMPs to be used in the National BMP Program. A separate technical guide is being prepared that will contain the national BMP monitoring protocols.

This technical guide provides information for implementing the National Core BMP portion of the Forest Service National BMP Program. The National Core BMPs were compiled from Forest Service manuals, handbooks, contract and permit provisions, policy statements and state or other organization's BMP documents. The National Core BMPs are not intended to supersede or replace existing regional, state, Forest or Grassland BMPs. Rather; the National Core BMPs provide a foundation for water quality protection on NFS lands and facilitate national BMP monitoring.

The National Core BMPs encompass the wide range of activities on NFS lands across the nation. The primary intent of the National Core BMPs is to carry out one of the federal CWA purposes to maintain the chemical, physical and biological integrity of the Nation's waters. To that end, the National Core BMPs are focused on water pollution control. The National Core BMPs also address soil, aquatic, and riparian resources, but only to the extent that they contribute to maintenance of chemical, physical and biological water quality.

The National Core BMPs in this technical guide are deliberately general and non-prescriptive. As this document is national in scope, it cannot address all possible practices or practices specific to local or regional soils, climate, vegetation types, or state-specific requirements. The National Core BMPs require the development of site-specific prescriptions based on local site conditions and requirements to achieve compliance with established state or national water quality goals. It is expected that State requirements and BMP programs, Forest Service regional guidance, and Forest or Grassland Plans will provide the criteria for site-specific BMP prescriptions. The National Core BMPs provide direction on "what to do" and the local direction will provide "how to do it". Table 1 contains two examples comparing the National Core BMP direction with Forest Service regional direction and state BMPs. Forest Service Regions may supplement the National Core BMPs with additional practices or practices that are more specific to meet Regional needs.

The federal CWA does not regulate NPS pollution. Instead, Sections 208 and 319 require states to develop a process to identify, as appropriate, agricultural, silvicultural and other categories of nonpoint sources of pollution and to set forth procedures and methods, including land use requirements, to control to the extent feasible such sources. Each state has a NPS Management Program and Plan that directs how the state will control NPS pollution. The NPS Management Plan describes the process, including intergovernmental coordination and public participation, for identifying BMPs to control identified nonpoint sources and to reduce the level of pollution from such sources.

Once BMPs have been approved by a state, the BMPs become the primary mechanism for meeting water quality standards in that state. Proper installation, operation and maintenance of state-approved BMPs are presumed to meet a landowner or manager's obligation for compliance with applicable water quality standards. If subsequent evaluation indicates that approved and properly installed BMPs are not achieving water quality standards, the state should take steps to revise the BMPs, evaluate and, if appropriate, revise water quality standards (designated uses and water quality criteria), or both. Through the iterative process of monitoring and adjustment of BMPs and/or water quality standards, it is anticipated and expected that BMPs will lead to achievement of water quality standards (EPA-823-B-94-005a (SAM 32)).

The US Forest Service Manual Direction requires all land use activities on national forests to meet federal and state water quality standards; Clean Water Act Section 303(d) and federal and state TMDL requirements (including, as

required in some states, the development and implementation of TMDL Implementation Plans (sometimes called WQRPs); point source NPDES permits; Drinking Water Protection; and Groundwater Protection requirements. BMPs applied should be based on site-specific conditions and political, social, economic and technical feasibility. Methods that reflect NPS conditions should be used to measure effectiveness of those BMPs.

4.3.3.2. BLM Best Management Practices to Reduce Sediment Delivery from BLM Roads in Oregon

BLM has developed a BMPs list for roads that is being used throughout Oregon (\\Deqhq1\wqnps\BLM and USFS\BLM Roads BMP List 2011\W_Or_BLM Road_BMP_Draft_2_ODEQ_Review_4_15_11 DY 5-4-11 epf 20110504_jds5-6-2011.xlsx). DEQ has approved this list.

The Road BMPs include the following:

- Written Plans for Road Construction
- Road Location
- Road Design
- Road Prism
- Stream Crossing Structures
- Drainage
- Waste Disposal Areas
- Road Construction
- Disposal of Waste Materials
- Drainage
- Stream Protection
- Stabilization
- Rock Pit and Quarry
- Road Maintenance
- Vacating Forest Roads
- Wet Weather Road Use
- Guidelines for maximum distance between contiguous cross drains based on U.S. Conservation Service soil erodibility groups
- Waterbar Spacing By Gradient And Erosion Class

4.4 Urban and Rural Residential

Although much of Oregon is in forestry and agricultural land uses, urban and rural residential areas can contribute much more pollution on a per acre basis. For the mostly urbanized watersheds, the impacts of urban development can include a longer list of different types of pollutants, including heavy metals, urban use pesticides, nutrients, sediment, hydrocarbons and combustion related by-products, bacteria, and emerging pollutants like fire retardant products. Increased levels of impervious surfaces (e.g., roads, rooftops and parking lots) associated with urbanization alter the hydrology of the landscape, often causing an increase in stormwater runoff volume/rates – resulting in unstable stream banks or increased flooding – and the discharge of additional pollutants to surface waterbodies. In these urban or urbanizing watersheds, natural surface water systems are replaced by stormwater infrastructure, connecting this water pollution source directly to the nearest stream, lake or wetland.

In Oregon, it is important to note that polluted runoff from urban areas is addressed by NPS programs or stormwater point source permits, and in some instances both programs. For example, larger cities or more populated counties may have both NPS and permitted stormwater requirements or commitments. Whereas, most medium and small sized communities may only address stormwater runoff through NPS programs and Clean Water State Revolving Fund (CWSRF) for funding NPS projects

Oregon relies on the following programs for the prevention, control, and treatment of urban pollution:

- **TMDL Water Quality Management Plan** – DEQ Identifies the urban pollutants located within a city, county and/or stormwater district's waters of the state that do not meet water quality standards and require TMDL load allocations to be met in order to protect beneficial uses.
- **TMDL Implementation Plan** – The TMDL identifies those city, county, and/or stormwater district DMAs that need to develop and implement a TMDL Implementation Plan. The Plan, developed by DMAs and approved by DEQ, must identify the programmatic and structural BMPs that are needed to control, reduce, and treat pollutants that have TMDL load allocations. The goal is for the DMA to meet water quality standards.
- **NPDES Municipal Separate Storm Sewer System (MS4) Phase I or II Stormwater Permit** - The Oregon TMDL rule requires that all Phase I or Phase II MS4 communities prepare a TMDL Implementation Plan. To address this requirement for urban runoff-related pollutants (e.g., bacteria, sediment), the MS4 permittees must develop a Stormwater Management Plan (SWMP) and submit it to DEQ for approval and incorporation as permit conditions.

For all TMDL impairments and listed pollutants, the SWMP must include BMPs (reflected as benchmarks) that are necessary to make progress towards achieving the applicable TMDL wasteload/load allocations. In addition, for those waterbodies located within a MS4 Phase I permitted community that do not yet have a TMDL, the permit requires the permittee to evaluate all 303(d) listed pollutants to determine whether the SWMP includes BMPs to reduce the 303(d) listed pollutant to the maximum extent practicable.

4.4.1. TMDL Implementation for Urban and Rural Residential DMAs

Each DMA identified in the Water Quality Management Plan is required to prepare an individualized implementation plan that provides a description of the management strategies necessary to prevent, control, and/or treat specific sources of the TMDL pollutant. The TMDL WQMP may provide information that the DMA *must* include in the TMDL Implementation Plan.

Each TMDL Implementation Plan must include the management strategies the DMA will use to reduce pollutant loading and achieve the load allocations. The TMDL Implementation Plan must describe the selected management strategies and measurable milestones in sufficient detail, such as providing siting criteria and operating methods, to inform DEQ's independent and objective review and effectiveness evaluation. In order to better protect water quality and beneficial uses, must be reversed. The city and counties natural resources must be identified and protected first. Then land uses should be located in a manner that both protects and utilizes the natural resources as an integral part of the developed landscape. Urban and rural nonpoint contributing sources need development-related controls administered through local land use ordinances. This alternative process has shown that development, mitigation, and in many cases, maintenance costs are less with an increase in quality of life for both humans and fish and wildlife.

A city or county will need to review, and if required, amend their comprehensive plan and applicable implementing ordinances. It is essential that city and county land use related TMDL Implementation Plan measures are enforced through the local plan and development ordinances.

Specifically, revising or adopting the following development ordinances are recommended:

- Erosion and Sediment Control.
- Stormwater Quantity and Quality Management Control and Treatment.
- Wetland, Riparian, and Other Environmentally Sensitive Areas Protection.
- Hillside Development.
- Floodway and Floodplain Protection.
- Drinking Water Protection (DWP) Overlay Zone for Groundwater Wells.

The TMDL Implementation Plan must also include implementation timelines and performance monitoring, including specific timelines for each practice to ensure that the TMDL load allocation is met within a reasonable timeframe.

The DMA should also include in the Implementation Plan reasonable assurances that the strategies described in the plan will work. There are two elements to these assurances. First, the management strategies selected should to be justified with estimates of their contribution to load reduction targets. Second, a description of funding sources and other mechanisms that will be used to assure implementation of strategies is essential for a complete plan. The cost of administration, operation and maintenance, and monitoring should be considered for the long-term implementation of the Implementation Plan.

TMDL Implementation Plan Development

A TMDL Implementation Plan describes the actions that are needed to improve water quality once a TMDL has been established. Generally, a TMDL Implementation Plan includes a list of pollutants of concern and the sources (if known), proposed treatment strategies, a timeline for implementation activities, and proposed methods for monitoring the effectiveness of implementation activities. These TMDL Implementation Plans are necessary because typically a TMDL only describes what needs to happen and does not set out a schedule for implementing the specific improvements (see applicable TMDL/WQMP for specific requirements).

The required components of a TMDL Implementation Plan are described in OAR 340-042-0080(4) excerpted below. See DEQ's May 2007 TMDL Implementation Plan Guidance for additional information.

OAR 340-042-0080(4):
Persons, including DMAs other than the Oregon Department of Forestry or the Oregon Department of Agriculture, identified in a WQMP as responsible for developing and revising sector-specific or source-specific implementation plans must:

(a) Prepare an implementation plan and submit the plan to the Department for review and approval according to the schedule specified in the WQMP. The implementation plan must:
(A) Identify the management strategies the DMA or other responsible person will use to achieve load allocations and reduce pollutant loading;
(B) Provide a timeline for implementing management strategies and a schedule for completing measurable milestones;
(C) Provide for performance monitoring with a plan for periodic review and revision of the implementation plan;
(D) To the extent required by ORS 197.180 and OAR chapter 340, division 18, provide evidence of compliance with applicable statewide land use requirements; and
(E) Provide any other analyses or information specified in the WQMP.
(b) Implement and revise the plan as needed.

4.4.2 NPDES MS4 Stormwater Permit

EPA's NPDES Phase I or Phase II Stormwater rules (http://cfpub.epa.gov/npdes/stormwater/munic.cfm) require the Municipal Separated Storm Sewer Systems (MS4) permitted community to implement a stormwater management program and to prepare a Stormwater Management Plan (SWMP) in order to reduce the discharge of pollutants into the storm sewer system to the maximum extent practicable. The Oregon TMDL rule requires that all Phase I or Phase II MS4 communities prepare a plan to guide implementation of management strategies identified in a TMDL WQMP. To address this requirement, a NPDES MS4 Phase I or II stormwater community prepares a TMDL Implementation Plan (typically for non-runoff related pollutants, such as temperature) or incorporates BMPs into its MS4 SWMP to address runoff-related pollutants, such as sediment or bacteria.

The MS4 permittee submits its SWMP (or TMDL Implementation Plan) to DEQ for approval and incorporation as permit conditions. The SWMP must include BMPs (reflected as benchmarks) that are necessary to make progress towards achieving the applicable TMDL wasteload/load allocations for all applicable TMDL impairments and listed pollutants. In addition, for those impaired waterbodies that a MS4 Phase I permitted community discharges to that do not yet have an approved TMDL, the MS4 permit requires the permittee to evaluate all 303(d) listed pollutants to

determine the adequacy of the SWMP to reduce the 303(d) listed pollutant to the maximum extent practicable, and make modifications to the SWMP BMPs as needed.

4.4.3 State Land Use Planning Goals

The Oregon Department of Land Conservation and Development (DLCD) implements the State of Oregon land use planning laws and regulations. .Where implemented, Goals 5, 16, and 17 protect wetlands, riparian areas, coastal shore lands, and estuaries by ensuring cities and counties identify environmentally sensitive areas in comprehensive plans and adopt zoning ordinances to protect them. Goal 6 can be used to support water quality related zoning and development ordinances such as riparian and wetland protection and stormwater control and treatment. It also allows jurisdictions to incorporate DEQ NPS directives into local plans and codes. Goal 7 directs local governments to apply land use management strategies that reduce risk to life and property. Goal 7 measures can integrate with NPS reduction measures in floodplains and landslide prone areas.

Statewide land use goals 11 and 14 also help to reduce the impacts of urbanization on water quality. Goal 11 requires jurisdictions to have public facility plans in place to serve as a framework for urban and rural development. Stormwater management plans are required under Goal 11 for all existing urban areas and when urban areas are expanded. Goal 14 provides standards for designating and expanding urban growth boundaries (UGBs). In Oregon UGBs limit urban sprawl. Goals 3 and 4 work to preserve productive farm and forestland. Nonpoint pollution from residential land use in farm and forest zones is minimal because new development is severely restricted in these zones.

DEQ coordinates with DLCD to provide information to local governments on NPS reduction, and TMDL compliance strategies. This relationship is particularly strong in the CNPCP management area.
It is however important to note that a DMA will still need to meet both the TMDL load allocations and the state land use-planning goals individually. For example, even if a local jurisdiction has adopted a Goal 5 "safe harbor" for riparian and wetland areas protection, the DMA will need to analyze the adequacy of their Goal 5 program in meeting their TMDLs, particularly the shade requirements with a temperature TMDL. For most urban areas, the riparian areas are degraded and may contain very few trees. In addition, the "safe harbor" buffer widths may not provide sufficient shade to meet the temperature TMDL shade surrogates in some instances. A local jurisdiction may determine that they comply with Goal 5 and not Goal 6 or their TMDL.

Urban and rural nonpoint contributing sources need development-related controls administered through local land use ordinances. **Goal 6** requires local jurisdictions to comply with state and federal water, land, and air quality laws. Land use planning is one of the most important first steps in meeting an urban and rural residential TMDL Load Allocation. It is essential that city and county land use related TMDL Implementation Plan measures are enforced through the local plan.

[I suggest the rest of this section be deleted or moved. See comment 18.]

A city or county will need to review, and if required, amend their comprehensive plan and applicable implementing ordinances. Specifically, revising or adopting the following development ordinances are recommended:

- Erosion and Sediment Control.
- Stormwater Quantity and Quality Management Control and Treatment.
- Wetland, Riparian, and Other Environmentally Sensitive Areas Protection.
- Hillside Development.
- Floodway and Floodplain Protection.
- Drinking Water Protection (DWP) Overlay Zone for Groundwater Wells.

It is however important to note that a DMA will still need to meet both the TMDL load allocations and the state land use-planning goals individually. For example, even if a local jurisdiction has adopted a Goal 5 "safe harbor" for riparian and wetland areas protection, the DMA will need to analyze the adequacy of their Goal 5 program in meeting their TMDLs, particularly the shade requirements with a temperature TMDL. For most urban areas, the

riparian areas are degraded and may contain very few trees. In addition, the "safe harbor" buffer widths may not provide sufficient shade to meet the temperature TMDL shade surrogates in some instances. A local jurisdiction may determine that they comply with Goal 5 and not Goal 6 or their TMDL.

In order to better protect water quality and beneficial uses, this process must be reversed. The city and counties natural resources must be identified and protected first. Then land uses should be located in a manner that both protects and utilizes the natural resources as an integral part of the developed landscape. This alternative process has shown that development, mitigation, and in many cases, maintenance costs are less with an increase in quality of life for both humans and fish and wildlife.

5. Oregon 319 Grant Program

5.1 Federal CWA Section 319(h) NPS Grant Funding

The NPS Grant Program is administered by the Oregon DEQ for providing funding to stakeholders for supporting activities that address the goals and objectives of the NPS Management Program. Through Section 319(h), federal funds are provided annually through the EPA to States for the development and implementation of each State's NPS Management Program.

Section 319 funds are primarily intended for organizational capacity development, implementation activities, including monitoring used to support TMDL development, implementation and measuring progress towards achieving TMDL allocations. In Oregon the 319 funding is divided in Base ,used to fund DEQ NPS staff positions for implementing the NPS Program (Sect. 5.2) and incremental , to be used to fund priority projects (Sect. 5.3) (Table 6). Project priorities for 319 Pass Thru Grants are identified by DEQ NPS staff and used in the development of the request for proposals.

Table 6 identifies the total Section 319(h) dollars, for the years 2007-2013. Funding of both, on the ground and planning, coordinating, prioritizing and implementing NPS activities in Oregon has been approximately $17 million.

Table 6: Oregon Total Section 319 Funding 2007 to 2013

YEAR	BASE	INCREMENTAL	TOTAL
2013	$1,301,492	$756,508	$2,058,000
2012	$1,249,000	$905,000	$2,154,000
2011	$1,230,168	$1,111,832	$2,342,000
2010	$1,288,300	$1,387,400	$2,675,700
2009	$1,288,300	$1,387,400	$2,675,700
2008	$1,288,300	$1,387,400	$2,675,700
2007	$1,279,900	$1,387,400	$2,667,300
TOTALS	**$7,646,840**	**$8,322,940**	**$17,248,400**